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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,431	01/28/2005	Hubert Sjoerd Blaauw	NL 020701	1272
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EXAMINER LANDRUM, EDWARD F				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/523,431

**Applicant(s)**

BLAAUW ET AL.

**Examiner**

Edward F. Landrum

**Art Unit**

3724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 May 2007.  
2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 10-24 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-7 and 10-24 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 08 August 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

Continuation of Attachment(s) 6). Other: Foreign Patent, Translation of the Foreign Patent, and Non-Patent Literature.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement filed 8/17/2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. According to PAIR and EDAN only one of the two NPL documents was provided, "Low-pressure ion nitriding of AISI 304 austenitic steel with an intensified glow discharge". Therefore the document pertaining to the American Institute of Physics still needs to be provided.

### ***Claim Objections***

1. Claim 7 is objected to because of the following informalities: In line 2, "at least one of cutting element" is grammatically incorrect. Appropriate correction is required.

### ***Double Patenting***

2. Claims 17 and 18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of copending Application No. 10/522287. Although the conflicting claims are not identical, they are not patentably distinct from each other because the only difference is the material used for the cutting blade.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 17, 18, and 22-24 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The only way the hardness of the diffusion (second) layer can be at a minimum in the center of the diffusion layer is if precipitationally hardening the cutting element had already occurred. How can this be the case in methods when precipitationally hardening the cutting element has not occurred? Why is precipitationally hardening the cutting element not inherent in claim 17?

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4-7, 10, 13, 14, 16, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Domoto et al (U.S Patent No. 6,354,008), hereinafter Domoto,

in view of Oiwa (Japanese Patent No. 60162766), in further view of Rosenhan (U.S. Patent No. 5,953,969) and in witness of .

Domoto teaches (see Figures 1-3, 6, and 7) an electric shaver with a plurality of steel cutting elements coated on all sides of the blade with a nitride based film having a hardness of atleast 1000 HV but possibly extending above 1500 HV. The nitride based film is applied to the cutting blade using a plasma CVD method. The cutting blades of Domoto are capable of working in dry or additive type shavers as both are functional equivalents and would have no bearing to how the cutting blades were made as most electric dry shavers are made to still be cleaned by a cleaning solution or water.

Domoto teaches all of the elements of the current invention as stated above except the steel cutting element being a maraging or precipitation hardening steel, said steel being hardened by plasma nitriding which forms a top layer of super saturated nitrogen and a diffusion layer adjoining the top layer to the hardness of the steel.

Oiwa teaches (see included translated Constitution) that it is old and well known to apply a nitride layer to a steel electric shaver blade by means of plasma nitriding.

Rosenhan teaches (Col.1, lines 15-23) that while CVD processes for applying strengthening layers to a tool is an option material deposited on the tool can tear or chip off when the material is used. Furthermore, Rosenhan teaches (Col. 2, lines 19-55) a maraging steel is a good steel for a plasma diffusion process and that a plasma diffusion process includes heating the material by precipitation hardening and combining the heating of the material with a plasma diffusion process. This method creates a tool that wears about 10 times less than other known tools.

It would have been obvious to have modified Domoto to incorporate the teachings of Oiwa and Rosenhan to use maraging steel for the cutting blades of the electric shaver and apply the nitride layer to the cutting blades of the electric shaver by means of a plasma nitride process that included precipitation hardening the cutting blades. Maraging steel is a steel that can be easily nitrized and resists wear and crack propagation. Plasma nitriding the maraging steel cutting members would make the cutting blades of the electric shaver wear 10 times less than other known tools thereby prolonging the life of the cutting blades.

Domoto does not explicitly state that the electric shaver is a dry shaver but it is inherent that the electric shaver of Domoto is a dry shaver as there is no mention of a lubricant or other liquid used with the shaver.

Regarding claims 1, 7, 10, and 19-21, and claiming the top layer being a uniform hardness, the diffusion layer decreasing in hardness, and the minimum hardness of the diffusion layer being found at the center of the diffusion layer, each of these limitations is intrinsic in the process of plasma nitriding a precipitationally hardened steel. To support this, the examiner has provided three references that teach these facts. Liang et al (2001) teaches (Pg. 6, Col. 1, Paragraph 2) that plasma nitriding a surface makes that surface have a top layer consisting of supersaturated nitrogen. Blawert et al (1998) teaches (Pg. 2, Col. 1, lines 2-5) teaches that plasma nitriding a surface causes a top layer to be formed along with a diffusion layer between the top layer and the material being nitrized. Askeland (1994) teaches (see Figures 5 and 6, the A and B characters have been added by the examiner to the upper Figure because the reproduction was

made in black and white) that a diffusion layer is a layer formed between the two materials where the two materials exchange atoms. Each edge of the diffusion layer takes properties that about the edge of the diffusion layer as more of that abutment materials atoms are found there compared to the other material found on the opposite edge of the diffusion layer. Therefore, the minimum hardness of the diffusion layer would be in the center of the two compounds abutting the diffusion layer if both were relatively the same hardness. The non uniform structure created by the combining of atoms of the different compounds would be at its greatest in the center because neither compound would have a large majority of atoms present. Figures 5 and 6 of Askeland clearly show this point.

7. Claims 2, 3, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the modified device of Domoto in view of Yamada et al (U.S Patent No. 5,857,260), hereinafter Yamada.

The modified device of Domoto teaches all of the elements of the current invention as stated above except the thickness of the top layer being in the range of 5  $\mu\text{m}$  to 25  $\mu\text{m}$ , and the thickness of the diffusion layer being in the range of 5  $\mu\text{m}$  to 20  $\mu\text{m}$ .

Yamada teaches that the optimal total thickness of hardness layers covering a blade is between 2  $\mu\text{m}$  and 15  $\mu\text{m}$  (Col. 1, lines 66-67; Col. 2, lines 1-5).

It would have been an obvious to have modified the modified device of Domoto to incorporate the teachings of Yamada to make the total thickness of the top layer and



the diffusion layer 2  $\mu\text{m}$  to 15  $\mu\text{m}$  to provide for the best cutting conditions for both the outer and inner cutting blades.

Furthermore, it would have been an obvious matter of design choice to a person of ordinary skill in the art to make the thickness of the top layer between 5  $\mu\text{m}$  to 25  $\mu\text{m}$  and the thickness of the diffusion layer between 5  $\mu\text{m}$  to 20  $\mu\text{m}$  because discovering the optimum or workable ranges for the thickness of the top layer and the diffusion layer would have been a mere design consideration based on the material properties of both the cutting blade and the nitride based top layer. Such a modification would have involved only routine skill in the art to accommodate the properties of the cutting blade and the nitride based top layer. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over the modified device of Domoto, as stated in section 6, in view of Gerasimov et al (U.S. Patent No. 6,584,691), hereinafter Gerasimov.

The modified device of Domoto teaches all of the elements of the current invention as stated above except the electric shaver being an additive type shaver.

Gerasimov teaches (see Figure 39) providing a solid soap additive 116 to an electric shaver for the purpose of improving lubricity as well as condition a user's skin or bear.

It would have been obvious to have modified the device of Domoto to incorporate the teachings of Gerasimov to provide an additive on the shaver. Doing so would

improve lubricity of the shaver as well as condition a user's skin or beard during shaving.

9. Claims 17, 18, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the modified device of Domoto, as stated in section 6, in view of Cole et al (U.S Patent No. 4,259,126), hereinafter Cole.

Domoto teaches all of the elements of the current invention as stated above except the steel cutting element being austenitic steel

Cole teaches (see Col. 1) teaches that it is old and well known in the razor art to make cutting blades out of austenitic steel.

It would have been obvious to have modified the modified device of Domoto to incorporate the teachings of Cole to use austenitic steel for the cutting blades of the electric shaver and apply the nitride layer to the cutting blades of the electric shaver by means of a plasma nitride process. The physical properties of austenitic steel resist wear and crack propagation.

#### ***Response to Arguments***

10. Applicant's arguments filed 8/8/2008 have been fully considered but they are not persuasive.

Applicant has failed to argue examiner's assertion that claimed subject matter is intrinsic. Furthermore, applicant has added additional subject matter that is also considered intrinsic to the process of plasma nitriding a hardened steel. Applicant employs an old and well known method of plasma nitriding (Page 5, line 17), and it does not appear that anything beyond claiming plasma nitriding a steel that has been

precipitationally hardened would be not intrinsic. Applicant is invited to provide an affidavit that scientifically and mathematically shows that the claimed subject matter is not intrinsic based on the process used and the article receiving the process.

***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sanderson (U.S Patent No. 3,743,551) teaches elements of the current invention.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward F. Landrum whose telephone number is 571-272-5567. The examiner can normally be reached on Monday-Friday 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on 571-272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3724

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. F. L./  
Examiner, Art Unit 3724  
11/7/2008

/Boyer D. Ashley/  
Supervisory Patent Examiner, Art Unit 3724